Remarks

A Final Action (July 20, 2007) has issued in the case. Concurrent with the instant RCE, and having considered the totality of the art cited during the course of prosecution, Applicants hereby present new claims 40-59. These substantially replicate the original claims, as elected post restriction, but for select amendments *inter alia* characterizing the scattered light as "polarized" (support is, e.g. at ¶ [00022] and/or the nanoparticle as having "first and second surfaces wherein the first surface is of area greater than the second" (support is e.g. at original Claim 4).

Whereas the embodiment presented in Applicants' Response Under C.F.R. §1.111 (May 15, 2007) was subject of the Final Action aforesaid, the new claims presented are firmly believed to be entirely patentable in view of the record. Their submission is without prejudice or disclaimer to embodiments or practices of the invention that may have been subject of discussion in prosecution of this case otherwise.

The file history for this application establishes that substantive rejections were lodged against it under 35 USC §103 citing the art of Yasuda, Yu, and then Pettingell. Applicants respectfully request that the remarks hereinbelow be duly and favorably considered and that the claims herein be deemed patentably distinct in concert with same.

Yasuda: This reference employs a gold bead of ca. 40 nm diameter, attached to F1-ATPase. Laser dark field microscopy is the imaging technique. The rotation of the bead is recorded as sequential images on a fast frame CCD camera. The bead appears as a 'spot' on a series of images whose time interval is 0.5ms. See Yasuda, page 898, right hand column, "Full-speed rotation..." to page 899. lines 1-3, top left.

The earlier Official Actions (Jan. 18 and July 20, 2007) concede that Yasuda has deficiencies: *inter alia*, it does not show the scattering of incident light at first and second wavelengths corresponding to the first and second surfaces of a nanoparticle (indeed, Yasuda uses a bead, which is not seen to have discernable first, second or other surfaces; it is a sphere of substantially uniform profile). Nor does Yasuda recognize that light

scattered by a first and second surface would be polarized; hence, it does not recognize need for a related polarizing filter in detecting the alternation of the first and second wavelengths. Indeed, Yasuda merely captures the movement of the bead *per se* by fast frame CCD imaging of it. The Official Action turns to Yu to remediate Yasuda.

Yu: this reference measures the absorption of light in colloidal suspensions of gold nanorods. Yu determined that the absorption spectral shifts in wavelength with changing rod aspect ratio. For example, at greater ratios (where the length of the rod increases relative to the diameter) Yu finds a shift, in absorption, to the red. The Official Actions have concluded that this implicates the claims, when combined with Yasuda. Specifically, that substitution of Yasuda's bead with Yu's nanorod would render the invention obvious.

Applicants disagree.

Yu is concerned with light that is absorbed by the nanorods, not with the light that is scattered by them. Not only does Yu not relate to scattered light, it furthermore does not teach that the scattered light from a gold nanorod is polarized (hence the need for a polarizing filter as claimed to identify the alternation, or flashing, of different scattered wavelengths which, in the present invention, is how motion is detected). [1]

Thus, neither Yasuda nor Yu recognize that the light scattered from a gold nanorod, for example, is polarized. Consistently, neither teaches, or could be said to even reasonably suggest, a polarizing filter as instrumental in detection under these circumstances. The combination of Yasuda with Yu therefore remains entirely deficient in this regard. Moreover, if one were to combine the two, one would either employ a CCD imaging device (Yasuda) or one would measure absorption (Yu) inasmuch as neither shows assessment of two different wavelengths with a polarizing filter. As this feature of the invention is totally absent from both references, no reasonable inference of it can be drawn from their combination.

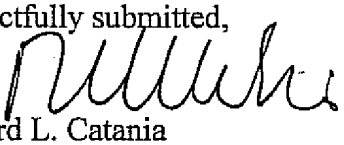
[1] Yu's mention of three polarizability axes page 6662, right column, penultimate paragraph, is understood by the artisan-reader to refer to absorption.

The Final Official Action also cites Pettingell (as supposedly interpreted by Kudo) for the premise that adding it to the mix supplies various missing aspects, e.g. alleged use of a polarizing filter for anisotropic observations. But why would one turn to Pettingell for polarizing filters when neither the primary nor secondary reference indicate scattered light from a first/second surface is polarized? There is thus not only no motivation to combine Pettingell, even under the re-statement of *KSR*, but the reason for which it is being combined is beyond and unneeded for what Yasuda and Yu actually disclose: Yasuda measures a bead image with fast frame CCD; and Yu measures absorption, not scattering. Only with improper hindsight does one even begin to look at art such as Pettingell.

In sum: Applicants have found that the light scattered from a nanoparticle having first and second surfaces wherein the first surface is of greater area than the second, such as gold nanorod, is polarized; and that the two wavelengths of light so scattered, ascribable to each respective surface, can be assessed using a polarizing filter and that motion can be detected thereby. None of this is obtainable from any of the art of record.

Applicants fervently believe the instant case is in condition for allowance, passage to which is earnestly solicited.

Respectfully submitted,



Richard L. Catania
Registration No. 32,608

Scully, Scott, Murphy & Presser, P.C.
400 Garden City Plaza, Suite 300
Garden City, New York 11530
(516) 742-4343
RLC:bk